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ABSTRACT

This paper traces the roots of the current library preservation movement and its evolution during the second half of the 20th century. It also looks at some of the contemporary shifts in thinking about preservation and changes in practice that are being explored by libraries. Finally the paper draws some conclusions as to the scope of programs in future. It suggests that a 21st century preservation program might contain the following elements: risk management and mitigation; physical treatment; copying; registration; applied research (analog and digital); digital initiatives coordination; repository and facility management; and trend analysis and strategic planning. (Author/AEF)

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Some thoughts on the race against time and inherent vice: Preservation program development in late 20th Century America

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Abstract:

This paper will trace the roots of the current library preservation movement and its evolution during the second half of the 20th century. It will also look at some of the contemporary shifts in thinking about preservation and changes in practice that are being explored by libraries. Finally the paper will draw some conclusions as to the scope of programs in future.

The notion that aspects of our material culture contain the seeds of their own chemical or mechanical destruction was not an especially new concept when taught by Paul Banks in his classes at Columbia University in the 1970 and 80s. After all, things do wear out over time, and, stuff falls apart. Still, the very idea that a valued cultural object - be it a statue, a book, or a film - if left to its own devices could though benign neglect eventually crumble to dust was and remains a disturbing prospect. This picture of disappearing culture was made all the more vivid when coupled with the notion that this could happen overnight, or at the very least, within one's own lifetime. The concept of racing against time and battling inherent vice and its effective use in raising public awareness and providing the basis for preservation planning and program development in academic and research libraries can in many ways be traced to two important events.

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In 1966, the Arno River breached its banks sending millions of gallons of muddy water into the basements of libraries and museums throughout Florence, Italy. This catastrophe, served as a wake up call to scholars, librarians, and book lovers around the world that natural disasters could ,in a flash destroy, hundreds of years of our global patrimony. Those who descended on that Northern Italian city as waters subsided, to assist in the painstaking recovery of thousands of swollen books, muddy paintings, waterlogged pieces of furniture, and soiled paper and vellum treasures saw firsthand the very real devastation that water and time can have on the human record. [1] For those who were directly associated with this event and its aftermath, as well as those at home who read about it, and saw the news coverage on television, the need to race against time to rescue these endangered treasures, was all to real. And, it planted in our minds a warning that this could happen anywhere, anyplace, anytime.

A second milestone contributed to the genesis of preservation programs as we know them today. This was the confirmation that papers produced since the mid 19th century contained the seeds of their own destruction in the form of acids added at the time of manufacture. While it has been known for centuries that some papers are better than others, it was not until the 1930s that serious research was conducted into the acid agents in machine made papers. This research was brought to fruition by William J. Barrow and others in publications that appeared during the 1950s and 60s which focused on deacidification as a solution to the acid menace.[2] The destructive agents, principally alum rosin sizing and bleach, added to paper were a perfect recipe for disaster, or, as Robert McNeill so solemnly states in the 1987 film Slow Fires, a time bomb set to go off in the late 20th century. Viewers of this film were left with a sobering picture of millions and millions of books turning to dust on shelves in libraries across the nation. In reaction, a race to rescue these endangered resources was not only warranted, but crucial to the future of scholarship.

Libraries of all types and sizes were affected by the flurry of concern raised by these two events. Many took action by launching conservation and preservation programs and departments. These early programs emphasized a small group of loosely related vertical functions that frequently included: Conservation of rare and valuable book and paper assets from the special collections); Commercial Binding of general collections materials, following common practices of the trade) Microfilming, for brittle materials using a technology that had been invented and used primarily for record's management until the 1970s and 80s when it was adapted for used for preservation purposes. Along side of these technical functions, much attention was paid to Emergency Preparedness and many institutions developed emergency response plans modeled around fire or flood scenarios. [3]

The preservation literature of the 1970s and 80s underscored libraries' intense interest in these issues. Of note are the brittle book surveys conducted by the Library of Congress, Yale University Library, and the Stanford University Library, and case studies in disaster response and recovery from Stanford, the Corning Museum of Glass, and the Los Angeles Public Library. As might be expected, several important book and paper conservation programs flourished during this time several of which were staffed by individuals who had served on the front lines in the Florence flood recovery, including Don Etherington and Peter Waters, who headed the conservation lab at the Library of Congress, and Paul Banks who led the conservation
program at the Newberry Library.

Conservation and preservation education in the U.S. and library preservation programs began to develop in tandem. Programs at the larger research libraries, such as the New York Public, Yale, Harvard, LC, Stanford, and Columbia University, began by the early 80s to reflect the common thinking of the day as taught at our countries first library conservation training program.

The Preservation and Conservation Training Program at Columbia University (now at the University of Texas at Austin) graduated its first class of preservation administrators in 1982 composed of individuals

who were trained in preservation management and in some cases conservation treatment. The program has gone on to graduate 130 professionals, most of whom are working in preservation programs in U.S. libraries. Prior to this in 1972, the American Institute for Conservation of Historic and Artistic Works (AIC) created its Book and Paper Group to address the growing concerns of libraries and museums with collections in these formats. Today this AIC special interest group maintains the largest membership of all of the AIC groups.

The American Library Association's (ALA) Preservation of Library Materials Section (later changed to Preservation and Reformatting Section) also played an important leadership role by hosting numerous programs and facilitating committees and discussion groups devoted to preservation. The ALA meetings were and continue to be the chief venue for library preservation professionals to discuss approaches to preserving the written and printed word. In fact, ALA was instrumental in educating librarians about Commercial Library Binding and Preservation Microfilming and held professional institutes on both of these topics throughout the 1980s and 90s using guidelines and preservation standards which had by this time become codified for both sets of activities. These included Nancy Gwinn's book Preservation Microfilming (1987) , a host of more than a dozen ANSI/AIIM standards to guide microfilming, and the Library Binding Institute Standard for Library Binding, and a Guide to its use, both published in 1990.

Working closely with the National Endowment for the Humanities' Office of Preservation and Access, the chief federal funding agency for preservation microfilming, U.S. libraries devoted substantial resources to preserve endangered brittle collections on microfilm. By the mid 1990s it looked as if the race against time might be won, or at least we might be reaching some form of equilibrium in addressing the overwhelming preservation challenges that faced our libraries.

As preservation librarians raced against the villain of time, they also discovered along the way the curse of inherent vice extended beyond acid migration to the quiet chemical disintegration of films, videos, and sounds recorded on magnetic tape. The race to rescue these endangered materials took off when in 1980, Directors Martin Scorcese, Steven Spielberg, Francis Ford Copolla, and others cried out publically that the early color films on which many of their works were printed were fading. This led to the first wave of large scale restoration projects where producers, archives and studios joined forces to rescue color cinematic incunables, such as the 1927 silent film Napoleon (restored in 1979), and the 1930s classic A Star is Born (restored in 1981-2). A second trend also contributed to the preservation of our film culture during this time: the emergence of cable and video cassette markets, which inspired and motivated studios to restore originals for reissue via these distribution modes.

With books smoldering in their own acids, risks from fire and flood, commercial binders oversewing our books and journals, and films quietly fading to black, most cultural institutions had heard the call and had joined the race to help in some way rescue the tangible and intangible aspects of our written, printed, and recorded culture. This was especially true in libraries.

By the late 1980's preservation programs existed in most ARL libraries. A consensus was beginning to emerge as to how balanced programs might look and operate in various types and sizes of libraries. These programs usually contained a broad set of interrelated preventive and remedial activities. A typical program of this period might, for example, devote resources to the following activities to care for its printed collections:

Commercial Library Binding (by now carried out using the LBI preservation Standard)
Conservation (for rare and valuable items, staffed by a trained professional)
Emergency Preparedness (including a written plan of prevention and response)
Brittle Book Replacement (to review brittle books and reselect or reformat them as necessary)
Staff and User Awareness (educating folks to handle materials properly)

Environmental Control (to make certain stack conditions are stable)

It was during the late 1980s that the notion of running a marathon against the ravages of time and chemical vice received a reprieve in the form of important work that was carried out at the Library of Congress and the Image Permanence Institute. Scientists at LC began to compile the results of artificially aged papers along Isoperm curves as a way of predicting life expectancies for printed materials stored under various temperature and humidity conditions. From this work, (the verification of which was underscored this year in studies that align natural aging of papers with artificially aged samples) LC scientists were able to draw conclusions about the benefits of cool storage conditions for organic materials.

Amid rising concern over a new inherent menace in film called the vinegar syndrome, researchers at the IPI began looking into the affects of temperature and humidity on acetate film. This important work, which built on ageing studies conducted at LC, and considered parallel research being conducted at the Manchester Polytechnic Institute, produced useful tools for preservation managers who, up to this time had been told that nitrate film was the stuff most at risk, not acetate 'safety film'. Following IPI's studies, and in particular the publication of the IPI Storage Guide for Acetate Film (1993) it looked like nitrate could indeed wait after all, and that maybe we could take a breather on the track to rescue, if we could provide the requisite cool and dry storage for these materials.

It was in large part the emergence of this new information that paved pathways to 'think different' about preservation program development. Data loggers that track variations in relative temperature and humidity to the minute are ubiquitous in libraries today as are programs for processing the data they collect. And increasingly this information is being used as the basis for collegial discussions between preservation professionals and facilities specialists, rather than as evidence of negligence.

The sound economy and good sense of cool and cold storage can't be denied. These conditions buy time for the weary runner and our collections, reducing by half the deterioration rate for every 10 degrees reduction in storage temperature. In practical terms, this means that if you move your copy of the New York Times or Shakespeare's Collected Plays from ambient room conditions of 70 degrees F and 50% RH to cool and dry conditions of 50 degrees F and 40% RH, you will be extending the life of these objects from 39 years to 211 years.

This new emphasis on developing strategies to benefit collections at relatively low per item costs became the focus of program development in the 90s and continues to be a driving force today. As the decade unfolds, one notes the frequency of 'collections conservation', 'batch treatment', and 'collection treatment' in the preservation lexicon.

Just as preservation programs in our research libraries were feeling that it might be possible to catch up with the backlog of printed materials in need of preservation and address in some fashion the influx of new materials in need of preventive preservation, digital preservation raised its unseemly virtual head. In fact, concerns about the impermanence of digital information had been simmering since the 1980s, but were brought into full public light by an article that appeared in the Scientific American in 1995 by Jeff Rothenberg entitled Ensuring the Longevity of Digital Documents. Mounting concern since that time in the academic, scholarly and library communities has produced a substantive and growing body of literature on digital preservation and a cast of players (such as the DLF, RLG, OCLC, PADI, CAMILEON, Digital Preservation Coalition, et al) who have advanced various promising models and approaches to preserving digital content. These approaches will be tested and refined in the years ahead.

LC entered the digital preservation arena when in 1998 our Librarian of Congress, James H. Billington invited a National Academy of Sciences panel to study the Library and prepare a report that identified

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what the Library needed to do to be ready for the digital future. A Digital Strategy for the Library of Congress, better known as LC 21, was released in 2000 and contained an excellent list of recommendations and suggested strategies for the library to consider to improve its digital preservation and access capability. In December of 2000, the Library received approximately $100M to begin this work under the aegis of the National Digital Information and Infrastructure Preservation Program. The goal of the program is to produce an infrastructure and program for preserving digital content that involves a broad cross section of public and private organizations and institutions that have a stake in digital preservation. An important element of the plan is the $75M that will be available to be matched by non-federal donations. The Library's initial status report to Congress is set for later this year.

It is difficult to assess the impact that digital preservation has had on the development of traditional preservation and conservation programs. Time this morning does not permit us to head off in this direction. Still, I would suggest that while resources earmarked for traditional preservation program development may have been swept away in the fever to mount digital demonstration and pilot projects in some of our libraries, that this may not have been an entirely bad thing. In fact it was probably just the diversion needed to stir us into reexamining the underlying tenets of our current preservation programs and begin to think seriously about the future.

At the Library of Congress, for example, the new issues surrounding preserving digital content have enriched the preservation debate, and, in a strange way, renewed emphasis on the importance of preserving printed materials. After all, if you don't take responsible care of the originals, there won't be anything to digitize. The advent of planning for the digital future at LC has, like the Hollywood studios, required that we also take new and serious steps to preserve and handle with great care our A/V assets so that they might be accessed and re-purposed in the future. For example, in the year ahead we plan to begin the mammoth task of cleaning, packaging, and labeling our voluminous sound and moving image collections before they are moved to a new audio visual conservation facility the library is developing in Culpeper, Virginia in 2004. We are doing this as a preventive conservation measure so that the sound and moving image recordings will be ready upon arrival and be safe and sound for any future use we envision.

On a programmatic level there are all sorts of issues that the digital future pushes to the forefront, including asset management, the need for research that addresses both analog and digital concerns, rights management, copyright as related to preservation actions, and a host of concerns that require broad, strategic thinking.

With discussions on how best to preserve digital content picking up steam, new solutions, such as paper strengthening and deacidification, available to preserve our printed records, and the fate of our analog culture in serious jeopardy,[4] it is more important now than ever to reevaluate the principles underlying our programs and develop capabilities and expertise to address the expanding technical, philosophical and administrative challenges that lie ahead. It may also be time to shift our focus from inherent vice as emanating from the physical objects themselves to risks posed by the broader environment in which our programs reside.

With the availability of cavernous, relatively inexpensive cool and cold storage facilities (such as those developed at Harvard University and at Ft. Meade, Maryland by LC) we can slow the rate of decay to almost negligible levels for all physical objects, be they paper, plastic or composite. This option enables us to select more judiciously and intelligently for preservation those materials that best match our user' s needs, including especially those needs which directly support our institution's strategic position. Of more concern in this new era is perhaps the inherent danger that comes from:

- the circumstances that surround the use of materials,
- their organization and description in library catalogs and their appearance on the web,

- the ways in which ownership and rights are managed,
- the development and use of responsible and technically sound practices for the copying of analog and printed materials to digital formats,
- the maintenance of safe digital environments, and
- the elegant migration of digital files to future platforms.

With the push many libraries are making to digitize, preservation programs have an opportunity to work more closely with curators and subject specialists to assure the care of original materials as they go through the scanning process. At LC, for example, all items scheduled for scanning undergo conservation evaluation and treatment first and then again following imaging. This has been a standard operating procedure for many years in our National Digital Library program.

The physical and chemical threats once considered our chief adversaries, recede further with the emergence of issues posed by the new research environment in which scholarly resources in digital form are the norm. Just as preservation and access have become more closely associated in the past decade of preservation program planning and implementation, the changes brought on by the digital future make these terms virtually indistinguishable. Physical exhibitions are sharing air time with digital exhibits, distance learning and remote access to library collections is becoming the standard for that which need not be transmitted in person, security is an increasing concern everywhere, and physical artifacts (rare books, maps, manuscripts, etc.) by virtue of their digital surrogates and variants, are taking on a new type of iconic, intrinsic value in addition to that assigned by monetary, associative and research value.
A case in point is the LC copy of the Gutenberg Bible, one of our institution's top treasures. It is a multi-faceted object with a fascinating history. Its value as a Bible is foreshadowed by its importance as the first product of an invention that was responsible for changing the face of modern civilization. Digitizing this book in particular creates a window of understanding into its importance in history that can be conveyed to school children, researchers, and citizens across the country. All of this adds value to the experience of the thousands who stream past the Bible as it rests in its climate controlled case in the Jefferson Building.

Like the Rolling Stones' Mick Jagger who posits the question, 'who wants yesterdays papers' it was unclear in the mid 15th century who in the future would want the 160 or so copies of Gutenberg's Bible that came off of his Mainz press. Or the 18 or so Shakespeare plays that appeared during his lifetime, or the first pressing of the LP on which this Rolling Stones song was first issued in 1967.

While the best crystal ball may be a rear view mirror, we can only select for preservation with the foresight afforded by our time. All the more reason we must do so making the limits of our charge known and seeking collaborations with trusted partners with whom we can assure that a sufficient representational cross-section of our cultural heritage is safely and responsibly protected for the future.

With the opportunity to add value to physical objects in our collections through digital access copies another set of preservation concerns emerge. These include not only assuring the safe handling of objects during the imaging process, but also assuring the correct handling of the bit streams of content and metadata following transformation. This extends to providing, through facility protection and environmental controls, a series of safeguards that protect the infrastructure of which the digital object and it derivations are but two manifestations.

We will continue for the next few years to reside in a transitional period with regard to technology development. There remains much to learn about how technology can be configured and approaches developed to meet both preservation and access needs of our present and future library users. Thus, the preservation programs of the future must be adaptive while still advancing the sound principles and practices that have served our programs well for the past half century.

In libraries today we are increasingly challenged to work both horizontally and vertically crossing traditional organizational lines and sharing information and knowledge with technology experts and content managers who reside in all parts of our organizations. An inevitable cross-pollination of skills, expertise, knowledge, and problem solving abilities reflective of the larger information universe emerges. As information providers and preservers of knowledge, we are challenged to consider how these trend can provide insight into the future.

Our 21st century preservation programs should mirror this changing landscape and the transformations that are taking place in libraries, museums, and other cultural organizations that face the challenge of preserving what they have while building new solutions to broaden access to off site visitors. In this environment, preservation programs have a vitally important role to play beyond caring for things to also caring for the access to knowledge. Bernard Reilly (President of the Center for Research Libraries), writes in the electronic journal First Monday [that], "in this new world, conservation means management. Hence the need to train a new generation of artists, curators, and librarians to appraise and broker knowledge and cultural resources, educate them in the basics of contract and relationship management, and teach them how to identify best practices for licencing and leasing. We have created on and off the web vast edifices of content, monuments of artistic achievement, in highly perishable digital form. The artists, curators, and librarians of the future will be responsible for building relationships necessary to afford and sustain access and cementing and documenting those access leases to guarantee their survival and insure the necessary future use and downstream rights."

Perhaps another important role is that which our preservation programs can play to link together communities within and outside our institutions who have a stake in preservation and access. So, for example, that we might better understand such things as end user needs, expectations and requirements . Above all, our preservation programs should be driving forces which responsibly guide and coordinate the art, craft and science of preservation. Instead, as in the past where technical functions drove work, our future programs must be both strategically and functionally integrated into our organizations and into the communities beyond the library. A 21st century program with these attributes might contain these elements:

1. Risk Management and Mitigation - to anticipate and prevent the full range of problems affecting collections, their storage environment and the preservation effort at large
- surveys and needs assessments
- emergency preparedness, response, recovery
- on and off site facility planning, construction and maintenance
- environmental monitoring and control
- integrated pest management
- hazard identification and risk reduction
- security

2. Physical Treatment - to carry out preventive and remedial physical treatment on objects and collections of objects
- contract management for commercial binding and deacidification,
- book, paper, manuscript, photograph, paper, vellum, newspaper repair consolidation, stabilization and housing
- exhibition preparation, loan, travel of objects

3. Copying - to replicate as much information as possible from a deteriorated original, or create from an original a copy for preservation, access, distribution

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- paper, film, sound, moving image
- driven by best practices, scientific knowledge, standards
- digital, analog, hybrid
- informed by end user requirements
- contract management

4. Registration
- resource allocation and management
- documentation
- standards development and compliance
- supplies procurement
- contract development
- rights management and copyright

5. Applied Research (analog and digital)
- media longevity
- ageing studies
- solutions to deterioration problems
- testing protocols for products
- performance metrics
- modified environmental storage
- -exhibition case design
- new materials research and application (zeolites, color matching illumination for exhibits, etc.)

6. Digital Initiatives Coordination - to coordinate and support the work of the various library units that are collectively contributing to the preservation of content in digital form.
- provide technical support for the selection of digital content
- coordinate development of best edition guidelines
- coordinate aspects of receiving best edition, including advising on the normalizing of digital content to make preservable digital objects.
- assignment of preservation metadata; contribute to the definition of preservation metadata
- monitoring the digital environment
- maintaining digital materials through preventive maintenance and treatment

7. Repository and Facility Management
- safe haven storage for top treasures (i.e., top treasures, mission critical materials, etc.)
- maintaining stable near room temp and humidity conditions
- advancing use of controlled cool and dry conditions to increase collection life
- manage physical assets through collaborations with facilities
- support security system maintenance
- support fire suppression maintenance
- future planning for space needs
- space programming and reprogramming for collection storage
- code, law compliance
- application of these activities to the digital environment and repository

8. Trend Analysis and Strategic Planning - to better understand the impact the internal and external environments have on the program and to look for opportunities to broaden the public base of knowledge about and support for preservation.
- demographic studies
- marketing

- product and service development
- publications
- advocacy
- collaborations with stakeholders
- out and in-reach
- preservation selection
- user community participation
- professional interaction
- community participation and engagement
- program integration
- fund raising

Programs with these capabilities will provide the infrastructure and backbone we need to begin to meet tomorrow's preservation challenges, to bridge national and international boundaries, and help us both individually and collectively to make informed preservation decisions with the full range of influencing factors before us.

While it is not entirely clear whether Mick Jagger is reacting more to the fast clip of life as to the staleness of the old, when in verse three he pines: [5]

Living a life of constant change
Every day means the turn of a page
Yesterdays papers are such bad news
(Same thing applies to me and you)

What is clear is that even in a fast paced world with our sights turned forward and our programs tuned to the changing scene, not everything will be saved. Nor should it. More important, is that we build integrative programs that encourage flexibility and which think broadly about the role of preservation within and beyond our organizations. To succeed at this, we will have at least created a healthy environment in which national and international collection development and preservation decisions for yesterday's, today's and tomorrow's historical records can be made with confidence.

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